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Oyster Coast:
A sense of place and change by the half-shell

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Oyster Coast:
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by

Austin Marshall Price

Report

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Abstract

Oyster Coast:
A sense of place and change by the half-shell

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The University of Texas at Austin, 2018

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The oyster has been a part of our diet for as long as we've settled where our rivers meet the sea — essentially as long as history has been recorded. Today, the Texas oyster fishery is a giant of an aquaculture industry with a lot of shifting gears. Particularly on Galveston Bay, where most of Texas's oysters are harvested, recent environmental catastrophes, i.e. Hurricanes Ike and Harvey, as well as long-term effects of climate change have left a considerable impact on the region's oyster supply that has kept commercial oysterman constantly adapting to meet market demand. In this report, I profile the oyster to give a glimpse into an aquaculture industry, a culinary tradition and the ever-changing Texas Gulf Coast where it all takes place. I discuss a bit of the history and processes of oyster cultivating and harvesting, as well as the politics of regulation by Texas Parks and Wildlife Department on the oyster reefs to look over the fragile natural resource. This piece is also accompanied by photographs and an audiovisual element.

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Chapter 1: On the bay

At the height of oyster season in 2017, I held onto the railing of an oyster boat as Captain Refugio Cendejas cranked the rusty lever next to the helm, releasing the chain connected to the dredge that hung from the side of the boat. The four-foot dredge – essentially a cage attached to a large metal rake – hit the murky waters of the Gulf and sunk to the bottom. The boat lurched to the side as the dredge made contact with the muddy reef below.

The sun had just risen over the Gulf of Mexico, preceded by a brisk wind over Galveston Bay. Cendejas cupped his gloved hands to his mouth and blew.

The oyster boat made tight circles between bamboo poles sticking up from the bay, marking some of the 868 acres of private leases owned by Jeri's Seafood, Cendajas's employer in Smith Point. The town of Smith Point, a peninsula facing the expanse of Galveston Bay and backed by miles of coastal prairie, basically houses the oyster supply company, its employees and a few old-timers looking for a quiet place opposite a body of water from the biggest city on the Gulf Coast.

Cendejas cranked the lever and brought up his bounty in large muddy clumps. His brother Salvador and another oysterman named Alejandro Romero emptied the haul on a metal platform and used metal chisels to break apart the clumps into the individual pieces identified as Crassostrea virginica. The American oyster.

"I like to be out here," Cendejas said laconically, revealing a gold-capped tooth beneath his salt-and-pepper goatee. He continued to steer the boat in tight circles as the others tossed oysters in baskets. Anything smaller than three inches in diameter was tossed back into the water for next season's harvest.

Like most food in the twenty-first century, oysters have no problem reaching the dinner table from their home estuary. We've developed a system of harvesting, cleaning, packaging, shipping that gets them to our oyster bars or spring festivals or private kitchens. And then we deep fry or grill, or brave them raw with a squeeze of lemon or hot sauce. They are adaptable to different styles of cuisine, from sautéed and served on Texas toast with a crème fraiche, or guzzled down by the ziplock-bagful in an eating contest. But either way, they conjure the image of the bay or river delta — where our inland freshwater rivers meet the vast, salty ocean. It's no coincidence that oysters have a longstanding tradition in American seafood cuisine. They spawn naturally where we populate our coasts.

But in Galveston Bay, where Cendejas has harvested oysters for over three decades, the oyster supply has seen a history of fluctuation. Market demand and subsequent overharvesting has coincided with environmental changes on a Texas coast that's anything but static. Over the long run, climate change has increased our droughts and floods. Both extremes have significant impact on the wellbeing of oyster reefs. And then hurricanes like Ike and Harvey hit the coast, bringing record-breaking floods and sediment into Galveston Bay. Oyster supplies still haven't recovered. In fact, Cendejas and many other harvesters have ceased operation on Galveston Bay this year altogether, waiting for the rain to slow, for the salinity levels to rise before resuming operation.

Much of the seafood we buy at the grocery story or order at restaurants can't claim wild origins. Our world's fisheries are a controlled system of engineering and aquaculture. Oysters are no different. The oyster industry is a system of long-term cultivation that requires human input for a harvested output. The question is, how well can an engineered system adapt in a changing Gulf Coast.

Chapter 2: Tasting place

"Do you eat them raw?" Cendejas shouted through the cold morning wind and the roar of the boat's engine. He grabbed a shucking knife – a dull, dinged-up two-inch blade with a rounded tip – and picked through the basket. He picked a fat one, nearly four inches, and pried open the mollusk's mouth, chucking the meatless valve back into the water. The semi-translucent meat glinted in the morning sun.

I grew up in Houston, not far from the bay, and eat oysters in the half shell as much as the next guy. But still the thought came to mind, how bizarre the oyster seems as a food we deemed edible. "He was a bold man that first ate an oyster," goes the quote by Jonathan Swift, who continued to describe oysters through one of his characters in Polite Conversations as "a cruel meat, because we eat them alive; an uncharitable meat, for we leave nothing to the poor; and…an ungodly meat, because we never say grace." There's no telling who that first oyster-eater was. Our oyster consumption precedes written history, or as Robert Hendrickson, historian and Ocean Almanac editor, would say, "Man has played his part in oyster population control since before we made our controversial move from monkeydom."

Perhaps that's why I felt primal there on Cendejas's boat, holding my breakfast in my hand as it continued to pump its colorless blood through its three-chambered heart. But they don't come any fresher, so I brought the muddy valve to my lips and knocked it back.

I can't think of a taste more closely tied to place. In one instance, you can taste the salty air over open ocean, and then an earthy, delta-water sweetness. Food writer M.F.K. Fisher described the taste of an oyster as "more like the smell of rock pools at low tide than any other food in the world."

Those attuned to the taste of oysters can detect the subtleties between oyster regions, perhaps even down to the distinct bay. “Everyone’s prejudice to their own oyster,” says Tracy Woody, owner of Jeri’s Seafood and Cendejas’s employer, who buys oysters from elsewhere on the Gulf Coast, in Louisiana, Alabama and Florida, as well as harvests from the bay outside his bedroom window. He describes the Galveston Bay oyster as the right amount of salty with the right amount of sweet, which may be a bit off kilter elsewhere on the Coast.

His sentiment isn’t new. In 1886, a Galvestonian named A.J. Musgrove wrote an op-ed for the Galveston Daily News, claiming that their bay “held as large and well-flavored oysters as anywhere on the planet.” But, Musgrove goes on, unchecked oyster harvesters had nearly stripped the bay of its supply, and “the restaurants of this city are forced to use Louisiana oysters.”

History repeats itself. This year, there are no boats running the private reefs off the shore of Smith Point. This time, Hurricane Harvey did the job that over-harvesting had done before. The storm killed most of the oysters in the private leases of Jeri’s Seafood. Anything coming out of packing facility at the Galveston Bay supplier had in fact come from a bay in Louisiana or Alabama first.

When I went back in March, a year after eating the freshest oyster I had ever had, all thirteen boats owned by Jeri’s Seafood remain docked, though the warehouse kept up its pace with shucking and packaging oysters to fulfill Texas’s demanding appetite. Like every year, an assembly line of workers shucked, cleaned and packaged oysters, though this year mostly from contract harvesters in Louisiana, which supplies the most oysters of any other state on the Gulf Coast.

I asked Woody where some of his captains were when they weren't out there on the bay.

"They're in there shuckin' oysters," he said.

Chapter 3: Oyster Coast in flux

Harvey did a number on oysters in Galveston Bay.

At the end of August 2017, Hurricane Harvey made landfall just east of Rockport, some 150 miles down the coast from Galveston Bay. The storm then reversed back over the Gulf, picking up more power as it turned northward toward Houston. The city braced for impact as the rain started to fall. And fall, and fall.

Then the floods came.

The bayou system in Houston swelled and overflowed its banks. According to a ProPublica data report, Hurricane Harvey damaged at least 69,000 properties in Harris Country, though the effects of isolating floods extended to Houstonians beyond those with damaged properties. Onward into 2018, as the people of Houston continue to deal with the inundation of a year's worth of rainfall in just a few days, so do the Galveston Bay oysters.

After the storm, Woody dredged up a bunch of oysters from his private reef. The two valves of each oyster were gaped open. The meat was gone and replaced with clumps of mud and debris. His oysters were dead.

Woody estimates that the floods from Harvey killed over 90 percent of oysters on his private reefs.

After visiting his operation in Smith Point last year, I paid him another visit in March to see how his recovery process had gotten along. I pulled up to the docks at Jeri's Seafood and saw him on the next property over, directing a bulldozer to level ground to build a new storage warehouse. The enterpriser kept himself busy, though his recovery on the reef hadn't yet started.

"You tell me when this rain is gonna quit," he asked me rhetorically. Six months after Harvey, he was still seeing more freshwater spill out of the Trinity River than usual, keeping his oysters in lower than ideal salinity levels. He decided to let the season pass without harvesting anything. Let it all sit in the bay for next year. And up the amount of oysters bought from other suppliers on the coast to keep his market stable.

"I was about to have a record breaking year, a record breaking few years," he told me. "It's heartbreaking, considering all the money and hard work."

But even before Harvey, Galveston Bay oysters – oysters in general – were no stranger to environmental changes. In fact, last year when I talked to many people in the oyster industry about that status of the oyster supply, they were still lamenting the damage done by Hurricane Ike, which occurred nearly a decade earlier, and the drought that struck Texas in 2011.

"Galveston Bay oysters are scarcer than they once were," said Mona Hochman, a senior research associate and seafood safety lab technician at Texas A&M Galveston. A combination of natural disasters, long-running environmental changes and loosely-regulated harvests had severely diminished the oyster bounty. The heyday of the Galveston Bay oyster had passed, she told me.

When Hurricane Ike struck the coast in 2008, sediment buried oyster reefs, blocking many oysters from feeding on the phytoplankton in the water and literally starving them to death. Given a year to recover, the Deepwater Horizon oil spill nearly shut down the oyster industry elsewhere on the Gulf Coast, save Texas, bringing subsequent harvest pressure on a Texas coast still feeling Hurricane Ike bruises. The next few years brought record-breaking drought to Texas. During the hottest summer on

record, increased evaporation and a low influx of freshwater from the Trinity River watershed brought up the salinity levels in Galveston Bay.

That balance between salty and sweet is reference to an oyster's geographic habitat. River deltas, where freshwater systems meet ocean water create a window of salinity – or the amount of salt in the water – primed for the oyster. Salinity is measured by parts per thousand, which refers to the grams of salt dissolved in 1000 grams of water. The ocean averages at 35 parts per thousand, while a river is close to zero. As salinity levels rise, the taste of the oyster becomes noticeably brinier.

But the real threat to oysters happens when salinity levels drop below average delta levels. Following the drought and preceding Harvey, the Houston area saw back-to-back years of 100-year storms and summer flooding. Freshwater spilled into the bay and brought salinity levels below 4 parts per thousand, into the danger zone for oysters. While lower salinity levels prohibit spat, or oyster larvae, from attaching to the reef to grow, the higher counts of freshwater also introduce bacteria harmful to the oyster in its weaker state.

All that, combined with growing pressure from an intensifying market, puts tremendous stress on the oyster.

Woody remembers back in the day, when he was growing up in Smith Point, that fishermen only harvested oysters for a short window of time between shrimp runs. Over time, as regulations in the shrimping industry tightened, captains put oyster dredges on their boats full-time and put all their efforts into harvesting oysters. He recalls the traffic this caused on the bay, where "a floating city" of boats would move from one public reef to the next, depleting them as they went.

“Lot of boats,” said Cendejas when I had asked him about the oyster season pre-Ike. Cendejas has spent three decades on the Gulf Coast watching these changes take place. He held out his hands to demonstrate the distance between boats on a crowded public reef.

Today, that flotilla is elsewhere on the Texas coast. Aransas Bay or Matagorda, or somewhere. But from the view of Smith Point, the horizon on Galveston Bay is clear and boat free, all the way to the barges coming in and out of the Houston Ship Channel.

Chapter 4: Imaginary boundaries, invisible reef

In recent decades, the Texas Gulf Coast has contributed about 30 percent of all oysters harvested in the Gulf of Mexico. Just before Ike, Galveston Bay produced 80 percent of that share. As environmental factors have come into play to fluctuate those numbers, so have increased regulations from Texas Parks and Wildlife Department.

A decade ago, oyster harvesters, both commercial and recreational, could be on the bay from sun-up to sun-down, seven days a week. Contract boats could expect to harvest in a day what last year they brought home in a week.

When I called Lance Robinson, the deputy director of the Coastal Fisheries Division of TPWD, to hear about the state's assessment of the oyster supply in Galveston Bay, he gave me a definitive diagnosis: "The oyster reefs in Galveston Bay remain depleted."

One way that TPWD has monitored oyster harvesting has been by regulating the amount of sacks that each boat can harvest in a day. TPWD defines a sack as no more than 110 pounds of oyster, including the shell. That may mean 250 oysters give or take, depending on the size of the oyster. At one time, the sack limit in Texas was 150 sacks per day. Last year that number was 40. That number has now dropped to 30 – and even that's a strong estimate of what a harvester can hope to bring in during legal harvesting hours. When I accompanied Cendejas on his boat last year, he hoped to bring back 25.

TPWD also regulates the size of the oyster. The greatest length of the shell must be three inches or larger. Anything smaller must be thrown back to the reef, though up to five percent of each cargo can be undersized before the haul is considered illegal – almost like the 5-mph leeway with highway speed limits.

In February of last year, shortly before I first visited Woody and Captain Cendejas, TPWD game wardens had led an aggressive operation down the coast in Aransas. According to a TPWD news release, the game wardens, in collaboration with the Border Patrol, U.S. Coast Guard and officers from other agencies wrote 67 citations and 15 warnings related to undersized oyster harvesting. “Hopefully this operation will serve as a deterrent to commercial fisherman and dealers to continue this practice,” said Robinson in the release, which called the operation a success for natural resource protection.

“That’s them tootin’ their own horn,” Woody said about this press release.

There’s a lot left unmonitored, he asserted. A lot of undersized oysters harvested. A lot of corners cut for the sake of a profit. Woody explained how commercial oystermen will harvest the public reefs nearly to the last oyster during the public season, November through April, without even touching their private leases until this public season closes. From an economic standpoint, this strategy makes sense. But it doesn’t consider the resource.

And the practice hasn’t let up. This past April, enforcement on the coast continued. Despite decreasing the sack limit this year to 30 sacks, and reducing the allowable amount of undersized oysters, game wardens wrote more than 300 citations in the 2017-18 season.

“I am appalled that some in the oyster industry continually fail to recognize how impactful their actions are, not just relating to future commercial oyster harvests, but to the overall health of our incredibly fragile and sensitive bay systems,” said Col. Grahame Jones, TPWD Law Enforcement Director, in a press release last month.

“Those other guys are thinking of the industry, of their pocketbooks,” said Woody, motioning westward across the bay, where other Galveston Bay oyster companies harvest out of San Leon near the refinery skyline of Texas City.

He then told me a story about his late father-in-law Ben Nelson, who started Jeri’s Seafood in 1970 with his wife Betty Geraldine, who goes by Jeri, and worked the reef until he died just a year prior.

“We’d be out workin’, building some bulkhead in this hot sumbitch, workin’ all day. Ben’d drive up in the evening and chew us out. ‘What the hell you bitchin’ about?’ he’d say. ‘You’re showin’ me all this shit you got done. Well I see the shit you didn’t do yet.’”

In other words, there’s more to be done for the oyster supply than to simply put up imaginary boundaries around public reefs.

Before Nelson had passed away, he and Woody started a project called STORM — Sustainable Texas Oyster Resource Management — to restore thousands of acres of Galveston Bay reef themselves. The only catch, they acquired this acreage through the Chambers-Liberty Counties Navigation District, which his industry competitors pointed out was already leased privately through the state. A group of oyster companies sued the Navigation District that granted STORM’s lease, accusing Woody and Nelson of using STORM to monopolize on Galveston Bay oysters. The district judge denied STORM’s right to the Navigation District acreage, which led Woody to appeal the decision to the Texas Supreme Court.

Nelson passed away of heart failure soon after, and the STORM project has been put on the back-burner.

The Musgrove op-ed in the Galveston Daily News from 130 years earlier seems to capture Woody's sentiment today. In 1886, Musgrove had witnessed the quick depletion of oyster reefs by harvesters "like free-grass barons, who reap where they have never sowed."

Musgrove, like Woody, saw Galveston Bay as a perfectly suitable delta for oysters to proliferate, but not without help from human hands.

"There is only one remedy," concluded Musgrove, "and that is cultivation."

Chapter 5: Second life for the half shell

Oyster cultivation isn't new. Some sources identify the first oyster farm as established by a Roman named Sergius Orata, in 95 BCE. Since then, our insatiable appetite for oysters — and all they have come to represent, i.e. a source of, ahem, youthful vitality — has outlasted the wild oyster source. Aquaculture for the oyster seemed as inevitable as the domestication of the cow.

Think of it like a farm. An oyster cultivator like Woody looks at a private oyster reef as the field. The ocean floor, not too muddy but not too sandy, is the soil. Recycled oyster shells are dumped back onto the soil as a sort of compost. The oyster spat is the seed. And then all the environmental conditions — the give and take of rain and sun and subsequent changes in salinity, the amount of phytoplankton that filters through and feeds the oysters, the amount of predators that cull the edge of the reef — affect the outcome of the crop.

An oyster cultivator starts a new reef, like any other farming, by the clearing of the land of debris or predators with a dredge like a tiller. He then scatters cultch — a combination of dead oyster shells and gravel — onto the reef. Oyster spat look for this surface to attach themselves and begin to grow. A few years later, that microscopic spat will be regulation size to be harvested and sacked for market.

On any given day at Jeri's Seafood, a roomful of shuckers separate meat from the shell, tossing the former into a bucket to be weighed, washed and packaged for restaurants, HEB's or oyster festivals in spring. The shell is tossed aside by the shucker but not forgotten. A couple of men collect the shells into a tractor loader and haul it outside to a dump truck. That truck then takes the load of half-shells to the tip of the peninsula that juts out into the bay.

From a distance, the mound of cultch looks like an artificial mountain of gravel like you would see at a mining quarry, but as you walk closer you start to see each individual shell — bleached white in the Texas sun save the purple nucleus where the meat once housed itself. Sea gulls flock near the top of the pile, picking out anything left behind by the shuckers.

Each summer, in a short window when oyster spat would set on the cultch before other mussels and barnacles take over, Woody takes a barge-worth of shells out to the bay and uses a water cannon to propel shells over the water and into the reef.

TPWD has done the same cultch-and-cultivate method on depleted public reefs, with the same rehabilitation goals in mind that Woody claims to have via STORM. But the process has been slow-moving, an uphill battle even before Hurricane Harvey.

"Since Ike, we have restored a total of 1,560 acres in Galveston Bay," Robinson at TPWD had told me on the phone last year. "Yet still, we lost over 6,000 acres, and there's just not enough money to put towards putting cultch out there to restore it."

Restoring those 1,560 acres cost over $13 million of federal disaster relief funds.

After Harvey, TPWD published a news release, claiming that the runoff from floods dropped salinity levels to zero, "resulting in wide-spread mortality of oysters in Galveston Bay." The bright side: those dead oysters will serve as cultch for the next spat set, granted the salinity levels rise in time, without TPWD having to spend the manpower and money it doesn't have to collect cultch and actively spread it over the reefs.

Elsewhere on the Texas Coast, cultivation and reef restoration has become more and more commonplace where oysters are harvested, particularly as restaurants and source-conscious consumers have started to think about the sustainability-factor of their favorite foods. In 2009, Dr. Jennifer Pollack at Texas A&M Corpus Christi launched an

oyster shell recycling program through her coastal conservation and restoration laboratory. The program, called Sink Your Shucks, uses volunteers to help transport shells from participating restaurants in the Coastal Bend region to reef restoration projects throughout the Mission-Aransas Estuary and near Goose Island State Park.

Pollack hopes to connect the cultivation process done by harvesters like Woody to the restaurant world, where oyster shells often make it to the trash when they could be recycled. Even at the Austin Oyster Festival, 200 miles from the coast, volunteers in Sink Your Shucks t-shirts roamed the festival to collect half shells to be transported back to the source.

In this way, the sea-to-table narrative becomes a closed circle. Sea to table, and back to the sea.

Chapter 6: Oyster Fests

A band played smooth jazz from the stage at Austin Oyster Festival. On a cloudy Saturday in late February, I stood in line for a tray of oysters by the half shell, though I was tempted to try oysters Rockefeller, or the oyster bahn mi. Emily Horvath, one of the organizers for the event, told me that her new favorite way to eat oysters was the oyster shooter: an oyster in a shot glass, with cocktail sauce and Deep Eddy vodka and a lemon garnish. Texas oysters with Texas vodka, she specified.

A week later, a different band played old time country from a stage on the Fulton boardwalk. I had driven down to the small coastal town last year for Fulton OysterFest and decided to come back, perhaps to spark a spring tradition for myself on Fulton's 39th year doing this festival. My options there were raw in the half shell with Tabasco and saltines, or deep-fried in cornmeal. I opted for raw. The line at the fryer was too long anyway.

The oyster is one of those foods that can adapt to any culinary tradition, any sense of place, as long as it's coastal. And as long as an industry of cultivators and harvesters adapt alongside it.

I took a seat with my back against a ZiegenBock Brewing advertisement — a bottle of amber beer coming out of an oyster shell. The band played "All My Ex's Live in Texas" as I used my plastic spork to scoop my raw oyster from its shell to my saltine cracker, added a little hot sauce, and took a bite.

Salvador Cendejas watches seagulls from the back of the oyster boat as the sun rises over Galveston Bay.

Captain Refugio Cendejas and Alejandro Romero watch the sun rise from their oyster boat over the private oyster reefs off Smith Point, TX.

Romero suits up in a neoprene apron and work gloves to begin a day of harvesting on private oyster reefs off Smith Point. He is a staff oyster harvester for Jeri's Seafood in Galveston Bay.

Cendejas and Romero empty the dredge of its first haul of the morning from the oyster reef below.

Romero uses a metal chisel to break apart muddy clumps of oysters, barnacles and other debris that come from the dredge.

The oystermen separate the regulation sized oysters (at least three inches in diameter) from smaller oysters and debris. Harvested oysters go in the basket, everything else gets dumped back into the reef.

Captain Cendejas helps his brother Salvador fill a sack with harvested oysters to be transported back to the shucking and packaging facility.

Another boat owned by Jeri's Seafood harvests on the private reef nearby. The boats spend the workday dredging in circles above the reef.

After Hurricane Harvey floods brought runoff into Galveston Bay and killed most of the oysters in the private reefs of Jeri's Seafood, the thirteen boats owned by the company sit unused in the docks for the season.

To keep up with market demand, Jeri's Seafood increased the amount of oysters purchased from elsewhere on the Gulf Coast, running oysters from Louisiana and Alabama through its facility.

Oyster shuckers at Jeri's Seafood work through a pile of the day's harvest and are paid by the pound of oyster meat shucked.

An oyster shucker uses a shucking knife to pry open a fresh oyster.

An oyster shucker uses his knife to separate the meat from the oyster shell.

Shucked oysters are weighed, washed and packaged.

Cleaned and pre-shucked oysters are packaged into quarts and gallons to be shipped to restaurants and grocery stores.

Tracy Woody, owner of Jeri's Seafood, stands in front of a pile of cultch — a combination of oyster shells and gravel — that he'll use to cultivate his private reefs.

Jeri's Seafood oyster shuckers work behind the counter at Austin Oyster Festival on the last weekend of February, the time of year generally known as the height of oyster season.

Shucked oysters are served by the half shell at Austin Oyster Festival.

Austin Oyster Festival attendees dance to a jazz band on the Lawn at Seaholm Power Plant.

Vendors at Austin Oyster Festival prepare oysters Rockefeller — topped with a butter-and-herb sauce and grilled in the half-shell.

Oyster lovers attend the 39th annual Fulton Oysterfest, a spring festival put on by the Fulton and Rockport Fire Departments every year on the first weekend in March.

Attendees at the Fulton Oysterfest compete in the Women's Oyster Eating Contest, a staple on the Oysterfest itinerary.

The concession stand run by the Rockport Fire Department at the Fulton Oysterfest serves up oysters deep-fried in cornmeal, salt and pepper.

Deep-fried oysters come out hot from the deep fryer into the concession stand at Fulton Oysterfest.

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